

Serial No. 10/892,212

# IN THE CLAIMS

1. (Currently amended) An erosion-resistant article comprising:  
a support selected from a silicon carbide support, an aluminum-silicon carbide support and a zirconium alloy support; and  
an oxide coating comprising yttrium disposed over said support, wherein said support and said oxide coating have material compositions that differ from one another in coefficient of thermal expansion by no more than  $5 \times 10^{-6}/K$ , and wherein said erosion-resistant article is a plasma process chamber component.
2. (Original) The erosion-resistant article of claim 1, wherein said material compositions differ from one another in coefficient of thermal expansion by no more than  $3 \times 10^{-6}/K$ .
3. (Original) The erosion-resistant article of claim 1, wherein said material compositions differ from one another in coefficient of thermal expansion by no more than  $1 \times 10^{-6}/K$ .
4. (Original) The erosion-resistant article of claim 1, wherein said support is an aluminum-silicon carbide support.
5. (Canceled)
6. (Currently amended) The erosion-resistant article of claim 1, wherein said support is selected from ~~an aluminum nitride support~~, a silicon carbide support, and a zirconium alloy support.
7. (Original) The erosion-resistant article of claim 1, wherein said oxide coating is an yttria coating.
8. (Original) The erosion-resistant article of claim 1, wherein said oxide coating further comprises aluminum.

Serial No. 10/892,212

9. (Currently amended) The erosion-resistant article of ~~claim 8~~ claim 1, wherein said oxide coating is an yttrium aluminum garnet coating.
10. (Original) The erosion-resistant article of claim 1, further comprising an intermediate region between said oxide coating and said support, wherein said intermediate region, said support and said oxide coating have material compositions that differ from one another in coefficient of thermal expansion by no more than  $5 \times 10^{-6}/K$ .
11. (Original) The erosion-resistant article of claim 1, wherein said component is a chamber wall component.
12. (Original) The erosion-resistant article of claim 1, wherein said component is a ring-shaped component.
13. (Original) The erosion-resistant article of claim 12, wherein said ring-shaped component is a process kit component.
14. (Original) The erosion-resistant article of claim 13, wherein said ring-shaped component is a focus ring.
15. (Original) The erosion-resistant article of claim 13, wherein said ring-shaped component is a capture ring.
16. (Original) The erosion-resistant article of claim 13, wherein said ring-shaped component is an insert ring.
17. (Original) The erosion-resistant article of claim 1, wherein said component is a dielectric window.

Serial No. 10/892,212

18. (Currently amended) The erosion-resistant article of claim 1, wherein said support is formed from ~~a material selected from alumina and aluminum-silicon~~ carbide and wherein said oxide coating is selected from yttria and yttrium aluminum garnet.
19. (Original) The erosion-resistant article of claim 18, wherein said plasma process chamber component is selected from a focus ring, an insert ring, a capture ring, a chamber wall component and a dielectric window.
20. (Currently amended) A method of making an erosion-resistant article comprising:  
providing a support; and  
providing an oxide coating comprising yttrium ~~disposed over said support by a process in which a powdered composition is sintered~~, wherein said support and said oxide coating have material compositions that differ from one another in coefficient of thermal expansion by no more than  $5 \times 10^{-6}/K$ , and wherein said erosion-resistant article is a plasma process chamber component.
21. (Canceled)
22. (Canceled)
23. (Canceled)
24. (Currently amended) The method of claim 20, wherein said support is ~~selected from an alumina support and aluminum-silicon carbide~~, and wherein said oxide composition is selected from yttrium oxide and yttrium aluminum garnet.
25. (Canceled)
26. (Currently amended) The method of ~~claim 25~~ claim 20, wherein said process comprises a hot pressing step.

Serial No. 10/892,212

27. (Currently amended) The method of ~~claim 25~~ claim 20, wherein said process comprises a dry pressing step and a sintering step.

28. (Currently amended) The method of claim 20, wherein said support ~~and said wherein said oxide coating are~~ is also provided by a process comprising at least one sintering step.

29. (Original) The method of claim 28, wherein said support is formed from a powdered raw mixture comprising alumina particles and said oxide coating is formed from a powdered raw mixture comprising (a) particles of yttrium oxide, (b) particles of yttrium aluminum garnet, or (c) particles of both yttrium oxide and aluminum oxide.

30. (New) An erosion-resistant article comprising:  
a support; and  
a sintered-powder oxide coating comprising yttrium disposed over said support, wherein said support and said oxide coating comprising yttrium have material compositions that differ from one another in coefficient of thermal expansion by no more than  $5 \times 10^{-6}/K$ .

31. (New) The erosion-resistant article of claim 30, wherein said material compositions differ from one another in coefficient of thermal expansion by no more than  $3 \times 10^{-6}/K$ .

32. (New) The erosion-resistant article of claim 30, wherein said material compositions differ from one another in coefficient of thermal expansion by no more than  $1 \times 10^{-6}/K$ .

33. (New) The erosion-resistant article of claim 30, wherein said support is an aluminum oxide support.

34. (New) The erosion-resistant article of claim 30, wherein said oxide coating is an yttria coating.

35. (New) The erosion-resistant article of claim 30, wherein said oxide coating further comprises aluminum.

Serial No. 10/892,212

36. (New) The erosion-resistant article of claim 30, wherein said oxide coating is an yttrium aluminum garnet coating.
37. (New) The erosion-resistant article of claim 30, wherein said component is a chamber wall component.
38. (New) The erosion-resistant article of claim 30, wherein said component is a ring-shaped component.
39. (New) The erosion-resistant article of claim 30, wherein said component is a dielectric window.
40. (New) The erosion-resistant article of claim 30, wherein said support is a sintered-powder support.
41. (New) The erosion resistant article of claim 1, wherein said oxide coating is a physical vapor deposited coating or a chemical vapor deposited coating.
42. (New) The erosion resistant article of claim 1, wherein said oxide coating is a thermal sprayed coating.
43. (New) The erosion resistant article of claim 1, wherein said oxide coating is a plasma sprayed coating.
44. (New) The erosion resistant article of claim 1, wherein said oxide coating is a sintered-powder oxide coating.